

## **TCEQ Interoffice Memorandum**

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**To:** Danielle Sattman Soule, Project Manager, Superfund Section, Remediation Division

**From:** Vickie Reat, Technical Support Section, Remediation Division

**Date:** April 14, 2011

**Subject:** Review of Response to Comments on the September 2010 Draft Baseline Ecological Risk Assessment (BERA) Work Plan  
Patrick Bayou Superfund Site  
Deer Park, Texas  
March 16, 2011

Per your request, I have reviewed the subject document. This memo also reflects input from Dr. Linda Broach of the TCEQ Region 12 office.

The Patrick Bayou Joint Defense Group (JDG) presented their responses to regulatory and trustees comments in a table that was organized by topic. The individual comments in the response table were not numbered. To facilitate review and discussion of my evaluation of the responses, my review comments are presented in a table organized by the page number of the response table, the Section and page number of the draft work plan, and the topic. Some of my review comments are accompanied by the notation "1 or 2." Note 1 indicates relevant revisions or additions will be provided in the revised work plan, and Note 2 is meant to indicate that relevant revisions or additions should be provided in the revised work plan. The rows that are shaded in orange (in the first column) indicate responses that merit more dialogue and revision. This table only reflects a review of comments coded as TCEQ1, as those were my comments.

I look forward to discussing the responses to comments as well as my review of these responses in a conference call that is scheduled for April 18, 2011. With this in mind, these review comments may change, or I may offer additional comments based on the outcome of the conference call.

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Response Table page number	Document Section/Page Number	Topic	TCEQ Evaluation of Responses to Agency Comments	Notes
1-2	General Comment #3	Benthic Community	TCEQ does not accept this response. The response generally summarizes text that was presented in the draft work plan. A possible resolution is to design the model as proposed and design an alternate including <i>Ampelisca</i> toxicity data. Evaluations using both models can be presented in the BERA along with a very robust uncertainty analysis. TCEQ suggests that the larger regulatory group discuss this comment and response.	2
2	4.3.1.2/p. 45	Benthic Community	Ok.	1
2	4.2.1.3/p. 46	Benthic Community	Ok.	1
3	4.2.1.3/p. 46	Benthic Community	Ok.	1
3	4.3.2/p. 48	Benthic Community	See previous review of response.	
3	4.4.2/p. 54	Benthic Community	Ok.	1
3	4.4.2/p. 54	Benthic Community	TCEQ suggests that the work plan be worded to leave this option open; that is, a reach-specific benthos model may be considered, including what outcomes may trigger this additional step. If not, the uncertainty section of the BERA should address the fact that this wasn't considered in the	2

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			model development.	
3-4	4.5/p. 57	Benthic Community	Ok.	
4	4.6/p. 57	Benthic Community	<p>This response implies that there is little uncertainty in the proposed benthic model, even though no community data were considered. We disagree. Community structure data collected at this site has shown (Broach, 2003) that in Patrick Bayou, all the samples had reduced numbers of species, reduced diversity, and were dominated by tolerant organisms. Numbers of species and diversity in Patrick Bayou were generally less than half of the values found in other tributary samples, and Patrick Bayou communities had more than twice the proportion of tolerant individuals compared to the other areas. However, only 40% of Patrick Bayou samples showed toxicity to <i>Leptocheirus plumulosus</i> in the 10-day tests.</p> <p>Our understanding of the proposed JDG approach is that only one species with one endpoint (10-day survival of <i>Leptocheirus plumulosus</i> in 43 whole sediment tests) is being used to develop the benthic model to identify sediments where benthic communities might be at risk for this site. This proposed model is based on the 4 COPCs that correlated well with this one species' survival. Other species, including <i>Ampelisca</i>, showed different sensitivities at this</p>	1

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			site, although data is very limited. This is not comparable to the development of WQC, where many species in various phyla, multiple life stages and multiple endpoints are considered. TCEQ suggests that the larger regulatory group discuss this comment and response.	
4-5	4.6.2/p. 58	Benthic Community	TCEQ does not totally agree with the proposed discussion. If some version of this discussion is added to the work plan, it should be supplemented with tables that provide SEM and AVS data to provide a comparison since the AVS was described as comparatively low and the SEM was described as comparatively high. There is also uncertainty overall in the AVS measurements due to the sensitivity of this analysis to sample collection and preparation methods. TCEQ suggests that the larger regulatory group discuss this comment and response.	
5	4.6.4/p. 61	Benthic Community	The response indicates that the JDG will review available toxicological information for benthos for HCB and HCBd and include it if meaningful. We are not sure what is implied by "meaningful." Certainly the BERA should evaluate these sediment COPCs in addition to the modeling effort. This should be acknowledged in the work plan. Both were detected at fairly high concentrations at Stations PBO32 and PBO01.3. Additionally HCB was detected in sediment pore water up to 82 ug/L with an average of 8.9 ug/L.	1, 2
7-8	5/p. 64	Fish	Ok.	

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8	5.3.1/p. 64	Fish	Response acknowledged. However the JDG did not answer the question whether larger fish (specifically COPC body burden) will be addressed in the BERA. Why or why not?	
8-9	5.3.2/p. 66	Fish	Ok.	1
13	2.7.1.1/p. 21	Brown Pelican	TCEQ continues to defer to the TPWD for resolution of this issue regarding the status of the Brown Pelican.	
13	2.7.2.3/p. 25	Brown Pelican	TCEQ continues to defer to the TPWD for resolution of this issue regarding the status of the Brown Pelican.	
14	3.1.4.4/p. 30	Brown Pelican	TCEQ continues to defer to the TPWD for resolution of this issue regarding the status of the Brown Pelican.	
14	6.3/p. 89	Brown Pelican	TCEQ continues to defer to the TPWD for resolution of this issue regarding the status of the Brown Pelican.	
14	6.1.1.5/p. 73	Raccoon	The response indicates that use of fish only (Group 1) BSAF values from the Calcasieu Estuary database was generally a conservative assumption. The JDG should elaborate further (for instance on a COPC group basis) on the basis for this assumption.	
14-15	6.2.4/p. 86	Raccoon	Ok.	2
15-16	2.7.2.3/p. 25	Wildlife	a. Ok. The revised tables presenting the refinement calculations of the TDI for each receptor in Appendix A should specifically indicate when body weight is expressed in grams or kilograms in each equation. b. Ok. The hazard quotient refinement tables and TDI	a: 1, 2 b: 2

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			calculation table should be revised for each of these receptors.	
16	3.2.3/p. 34	Wildlife	First part of comment: Ok. Second part of comment: We maintain that the carnivorous mammal exposure should be designated as complete and uncertain or complete and minor, rather than incomplete. Perhaps the JDG's concern is that either of these designations would result in a requirement that this pathway be quantitatively evaluated in the BERA. Page 22 of the work plan states that exposure of this receptor group to Site COPCs would be <u>minor</u> and the ecological relevance of these species to the Site is therefore low. The discussion goes on to say that the risk assessment will not attempt to further quantify risk to piscivorous mammals. TCEQ acknowledges and accepts these last 2 statements.	1
17	6.1.1.1/p. 71	Wildlife	Generally agree with response. TCEQ suggests that the work plan provide additional discussion how the JDG may determine if a reach-specific calculation of the 95 UCL is appropriate for sediment probing invertivores. Of course more details can be provided in the BERA.	2
17-19	6.1.1.2/p. 72	Wildlife	TCEQ disagrees with response. The AUF term can be used to modify the whole dose, of which FR is a part. TCEQ is amenable to a future conference call to resolve this issue and would encourage the participation of both state and federal risk assessors and trustees in the discussion.	

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19	6.1.2/p. 74	Wildlife	Ok. The revised work plan should reflect the revisions to the TDI calculation in Appendix A and also the associated HQ refinement tables. It was not clear from the response if this resulted in a change to the COPCs going forward for the sandpiper and raccoon (different from that reflected in the work plan tables).	1
19-20	6.2/p. 76	Wildlife	Ok.	1
20	6.2/p. 76	Wildlife	Ok. The response indicated should be acknowledged in the revised text of the work plan.	2
20	6.2/p. 76	Wildlife	Ok. The response indicated should be acknowledged in the revised text of the work plan for clarity.	2
20	6.2.1/p. 77	Wildlife	Ok.	1
21	6.2.2/p. 80	Wildlife	Ok.	1
21	6.2.2/p. 80	Wildlife	Ok.	1
21-	6.2.4/p. 86	Wildlife	See previous evaluation of response.	
22	6.2.5/p. 89	Wildlife	Ok. For clarity, the work plan should be revised to reflect the response.	2
22-23	6.3/p. 89	Wildlife	Ok.	
23	Attachment 1 Section 3.2.2/p. 6	Wildlife	Ok. The sampling and analysis plan should be modified to reflect the response. We anticipate the BERA will present both approaches and provide a discussion detailing the approach that is selected for the ultimate risk calculations.	2

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23-24	General Comment #1	Fish and Invertebrate Sample Collection	Ok. The work plan can acknowledge that a reach-specific assessment may be performed for a particular receptor/guild and the decision to do so along with the process/rationale for that assessment will be discussed in the BERA itself.	1, 2
24	Attachment 1 Section 3.3/p. 7	Fish and Invertebrate Sample Collection	Ok.	
24	Attachment 1 Section 3.6.2/p. 11	Fish and Invertebrate Sample Collection	Response acknowledged. The BERA should discuss the uncertainty associated with this part of the dose if collection of male and female blue crabs is not balanced.	
24-25	Attachment 1 Section 3.6.3/p. 13	Fish and Invertebrate Sample Collection	Ok.	1
25	Attachment 1 Section 3.6.3/p. 13	Fish and Invertebrate Sample Collection	Ok. The revised work plan should indicate that the BERA will describe a rationale/process for grouping sediment samples with fish and invertebrate tissue data to calculate site BSAFs.	2
25	Attachment 1 Section 3.6.4/p. 14	Fish and Invertebrate Sample Collection	Generally ok. The revised work plan should expand on the response for clarity, and provide a justification for the target numbers.	2



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25-26	Attachment 1 Section 3.6.4/p. 14	Fish and Invertebrate Sample Collection	Ok.	1
26-27	Attachment 1 Section 3.7/p. 16	Fish and Invertebrate Sample Collection	Partially ok. Regarding the storm event/salinity aspect of the comment, TCEQ was concerned that tissue should not be collected until after the bayou has stabilized in general (flow regime, salinity, and dissolved oxygen). If possible, the discussion should outline the preferred waiting period and rain event threshold that may dictate a delay in sampling. This aspect of the comment was not addressed in the response.	1
27	Attachment 1 Section 5.1.2/p. 27	Fish and Invertebrate Sample Collection	Ok.	1
29	6.1.2.1/p. 74	Risk Characterization	TCEQ acknowledges that our concern regarding the need to address potential hot spots is somewhat tempered by the use of surface-weight average sediment concentrations. However, this response does not address the "how" part of the question	
30	General Comment #2	Table Clarifications	Ok.	1
30-31	Section	Table	Ok.	1

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	2.6.3.2/p. 19	Clarifications		
31	2.7.2.1/p. 23	Table Clarifications	Ok.	1
31	2.7.2.1/p. 23	Table Clarifications	Ok.	1
31	2.7.2.2/p. 24	Table Clarifications	Ok.	1
32	6.3/p. 89	Table Clarifications	Ok.	1

1 – Response indicates that relevant revisions or additions will be provided in the revised work plan.

2 – Although the response does not indicate as such, relevant revisions or additions should be provided in the revised work plan.

Broach, L. 2003. *Analysis of the Patrick Bayou Macrobenthic Community*. TCEQ. Houston, TX. 22 pages.